Clean copy of the allowed claims

1. A computer implemented method for developing an information system through multiple development phases, the information system including system architecture, one or more software applications, system hardware and networking components, the method comprising:

at one or more design phases, validating a design of a proposed information system by comparing performance metrics calculated from a predictive model of the design against a set of predefined performance requirements, ensuring that the design satisfies the set of performance requirements at each design phase; and

proceeding to a further construction phase if the design is validated.

at one or more construction phases, validating a prototype of at least a portion of the proposed information system described in a validated design by:

a) comparing performance metrics calculated from a predictive model of the validated design against actual performance metrics obtained from the prototype;

b) if the performance metrics calculated from the predictive model of the validated design do not conform to the actual performance metrics obtained from the prototype, varying a workload type and volume selected to be applied to both the predictive model and the prototype;

c) repeating steps a) and b) until the performance metrics calculated from the predictive model of the validated design conform to the actual performance metrics obtained from the prototype.

Cancel claim 2.

3. The method of claim 1, further comprising:

modifying the design if the calculated performance metrics do not satisfy the set of performance requirements;

validating the modified design by comparing updated performance metrics calculated from a predictive model of the modified design against the set of performance requirements, ensuring that the modified design satisfies the set of performance requirements; and

proceeding to a further development phase if the modified design is validated.

4. The method of claim 3, wherein modifying the design comprises scaling the number or kind of components of the design.

5. The method of claim 1, further comprising:

providing a description of business components and interactions from a business design;

generating a predictive model of the proposed information system design comprising a business layer, an application layer, and a system layer, the business layer being generated from the description of the business components and interactions, the application and system layers being generated by associating each business component in the business layer to default application and system component models; and

calculating performance metrics from the business layer to validate the business design.

6. The method of claim 5, wherein the default application and system component models are selected from a Standard component library.

7. The method of claim 1, further comprising:

providing a description of business components, application components, system components, and interactions from a design;

generating a predictive model of the proposed information system design comprising a business layer, an application layer, and a system layer, the business layer being generated from the descriptions of the business components and interaction; the application layer being generated with standard or customized application component models matching the descriptions of the application components and interactions, the system layer being generated with standard or customized system component models matching the descriptions of the system components and interactions; and

generating performance metrics from the business, application, and system layers to validate the design.

8. The method of claim 1, further comprising:

performing a cost analysis on the validated design to determine whether to proceed to a further development phase.

9. A method for developing an information system through multiple development phases, the information system including system architecture, one or more software applications, system hardware and networking components, the method comprising:

at one or more construction phases, validating a prototype of at least a portion of a proposed information system constructed from a validated design by:

a) comparing performance metrics calculated from a predictive model of the validated design against actual performance metrics obtained from the prototype;

b) if the performance metrics calculated from the predictive model of the validated design do not conform to the actual performance metrics obtained from the prototype, varying a workload type and volume selected to be applied to both the predictive model and the prototype;

c) repeating steps a) and b) until the performance metrics calculated from the predictive model of the validated design conform to the actual performance metrics obtained from the prototype.

10. The method of claim 9, further comprising:

calculating performance metrics from the predictive model in response to different workload type or volume;

obtaining actual performance metrics from the prototype in response to different workload types or volume; and

comparing the actual performance metrics against the calculated performance metrics to verify conformance of the prototype to the predictive model.

11. The method of claim 10, further comprising:

modifying the prototype if the calculated performance metrics do not satisfy a set of performance requirements, wherein modifying the prototype comprises scaling the number or kind of components of the design;

validating the modified design by comparing updated performance metrics calculated from a predictive model of the modified design against the set of performance requirements, ensuring that the modified design satisfies the set of performance requirements; and

proceeding to a further development phase if the modified design is validated.

12. The method of claim 10, further comprising:

replacing application or system component models in the predictive model if a component described in the validated design is substituted in the prototype.

13. The method of claim 1, wherein the calculated performance metrics are used to evaluate tradeoffs in maintaining components that implement services for enhancing quality and robustness of the proposed information system, consistent with business or performance requirements.

14. A system for developing an information system through multiple development phases, the information system including system architecture, one or more software applications, system hardware and networking components, the system comprising:

a computer with:

a processor to execute a program of instructions stored in the memory of the computer;

a memory to store a program of instructions for performing a method for developing an information system through multiple development phases;

a display to display results of multiple development phases;

at one or more design phases, a performance metric calculation module calculating performance metrics from a predictive model of a proposed information system design;

a construction module validating the proposed information system design by comparing the calculated performance metrics against a set of predefined performance requirements, ensuring that the design satisfies the set of performance requirements at each design phase; and

proceeding to a further construction phase if the design is validated.

at one or more construction phases, the performance metric calculation module calculating performance metrics from a predictive model of a validated information system design;

a prototype of at least a portion of the proposed information system being constructed from the validated design;

the prototype being validated by:

a) comparing performance metrics calculated from the predictive model of the validated design against actual performance metrics obtained from the prototype;

b) if the performance metrics calculated from the predictive model of the validated design do not conform to the actual performance metrics obtained from the prototype, varying a workload type and volume selected to be applied to both the predictive model and the prototype;

c) repeating steps a) and b) until the performance metrics calculated from the predictive model of the validated design conform to the actual performance metrics obtained from the prototype.

Cancel claim 15.

16. The system of claim 15, further comprising:

the design being modified if the calculated performance metrics do not satisfy the set of performance requirements;

the performance metric calculation module calculating updated performance metrics from a predictive model of the modified design;

the construction module validating the modified design by comparing the updated performance metrics against the set of performance requirements, ensuring that the modified design satisfies the set of performance requirements; and

proceeding to a further development phase if the modified design is validated.

17. The system of claim 16, wherein the design is modified by scaling the number or kind of components of the design.

18. The system of claim 14, further comprising:

an input module providing a description of business components and interactions from a business design to the construction module;

the construction module generating the predictive model of the proposed information system design comprising a business layer, an application layer, and a system layer, the business layer being generated from the description of the business components and interactions, the application and system layers being generated by associating each business component in the business layer to default application and system component models; and

the performance metric calculation module calculating performance metrics from the business layer to validate the business design.

19. The system of claim 18, wherein the default application and system component models are selected from a standard component library.

20. The system of claim 14, further comprising:

an input module providing a description of business components, application components, system components, and interactions from an information system design to the construction module;

the construction module generating a predictive model of the proposed information system design comprising a business layer, an application layer, and a system layer, the business layer being generated from the descriptions of the business components and interactions, the application layer being generated with standard or customized application component models matching the descriptions of the application components and interactions, the system layer being generated with standard or customized system component models matching the descriptions of the system components and interactions; and

the performance metric calculation module generating performance metrics from the business, application, and system layers to validate the design.

21. The system of claim 14, further comprising: a cost analysis being performed on the validated design to determine whether to proceed to a further development phase.

22. A system for developing an information system through multiple development phases, the information system including system architecture, one or more software applications, system hardware and networking components, the system comprising:

at one or more construction phases, a prototype of at least a portion of a proposed information system being constructed from a validated design;

a performance metric calculation module calculating performance metrics from a predictive model of the validated design;

the prototype being validated by:

a) comparing performance metrics calculated from the predictive model of the validated design against actual performance metrics obtained from the prototype;

b) if the performance metrics calculated from the predictive model of the validated design do not conform to the actual performance metrics obtained from the prototype, varying a workload type and volume selected to be applied to both the predictive model and the prototype;

c) repeating steps a) and b) until the performance metrics calculated from the predictive model of the validated design conform to the actual performance metrics obtained from the prototype.

23. The system of claim 22, further comprising:

the performance metric calculation module calculating performance metrics from the predictive model in response to different workload type or volume;

actual performance metrics from the prototype being obtained in response to different workload types or volume; and

the actual performance metrics being compared against the calculated performance metrics to verify conformance of the prototype to the predictive model.

24. The system of claim 23, further comprising:

the prototype being modified if the calculated performance metrics do not satisfy a set of performance requirements, wherein modifying the prototype comprises scaling the number or kind of components of the design;

validating the modified design by comparing updated performance metrics calculated from a predictive model of the modified design against the set of performance requirements, ensuring that the modified design satisfies the set of performance requirements; and

proceeding to a further development phase if the modified design is validated.

25. The system of claim 22, further comprising:

application or system component models in the predictive model being replaced if a component described in the validated design is substituted in the prototype;.

26. The system of claim 14, wherein the calculated performance metrics are used to evaluate tradeoffs in maintaining components that implement services for enhancing quality and robustness of the proposed information system, consistent with business or performance requirements.